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UNITED STATES DEPARTMENT OF AGRICULTURE
U.S. FOOD DISTRIBUTION ADMINISTRATION
DAIRY AND POULTRY LABORATORY

THE CHEMICAL ANALYSIS OF PRESERVED BUTTER OR BUTTER SPREAD

Total Solids (Tentative)

Weigh approximately 2.0 gram sample into a tared covered dish which had been previously dried at 103-105° C. and cooled in a desiccator. The sample should be evenly spread over the surface. Add 2 ml. of warm distilled water and slowly heat on a hot plate (100° C.) until the water has been well mixed with the sample. Remove the sample from the hot plate before browning occurs, then place in an atmospheric oven (103-105° C.) for at least 12 hours. Remove the dishes and transfer to a vacuum oven at 103° C., not less than 20 inches vacuum for 1 hour. Place in desiccator for 10 minutes, reweigh and calculate as percentage of total solids in sample.

Fat Analysis by Ammonium Hydroxide Digestion

Add directly to the bottom of a well dried Mojonnier flask 1.0 grams of a well mixed sample. Since the consistency of the butter spread is very sticky, it is advisable to use a number 5 cork borer with an inserted glass plunger to deliver the sample to the bottom of the flask. Add 5 ml. distilled water at 65-70° F. Shake briefly, then add 7 ml. ammonium hydroxide (26° Baume). The sample is digested in a hot water bath of about 190° F. The flask is then removed and cooled to room temperature before extracting with the volatile solvents.

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Add 10 ml. ethyl alcohol, shake well with stopper in place. Proceed by adding 25 ml. ethyl ether, stopper and again shake well, at least 30 times. Next add 25 ml. petroleum ether, restopper and shake at least 30 times before centrifuging for 30 turns in Mojonnier centrifuge. Remove flask from centrifuge basket and pour the decanted fat-ether solution into previously conditioned dishes. The dishes are conditioned by putting dishes free from film in vacuum oven for 5 minutes and desiccate to constant temperature for 10 minutes or as long as necessary. Proceed with second extraction in the same manner as for first with the exception that only 5 ml. alcohol is used. Raise the ether level in flask by adding distilled H_2O slowly into side of extraction flask so as to pour off all fat-ether solution completely. Evaporate decanted liquid on hot plate at 135° C. until all ether odor is eliminated. Place in vacuum oven at 135° C. at 28" vacuum for 5 minutes, cool in desiccator for 10 minutes. Weigh and report as percentage of fat.

Note: It has been found that by adding a few drops of phenolphthalein solution before extracting, the dividing line may be more distinctly observed.

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